inconceivable to anyone who has not witnessed the experiment, that such passes should be negotiable at all, even if the gymnastic capacity possessed by the yak or by the coarse-bred and clumsy Yarkandi pony be duly appreciated.

Captain Deasy's narrative is a plain and simple record of a very remarkable series of explorations. It cannot fail to be interesting to all who love adventure, or who discern a future of political difficulty looming on the borders of Tibet. It is interesting to the geographer for many reasons, not only because it illustrates certain methods which should be adopted by every modern scientific traveller in Asia, but because it solves many an old geographical problem and suggests one or two new ones. Amongst other important determinations, that of the altitude of the Muztagh-Ata of Sven Hedin (which is now definitely ascertained to be 24,000 feet above sea-level) fixes the height of the highest peak north of the Himalaya.

T. H. H.

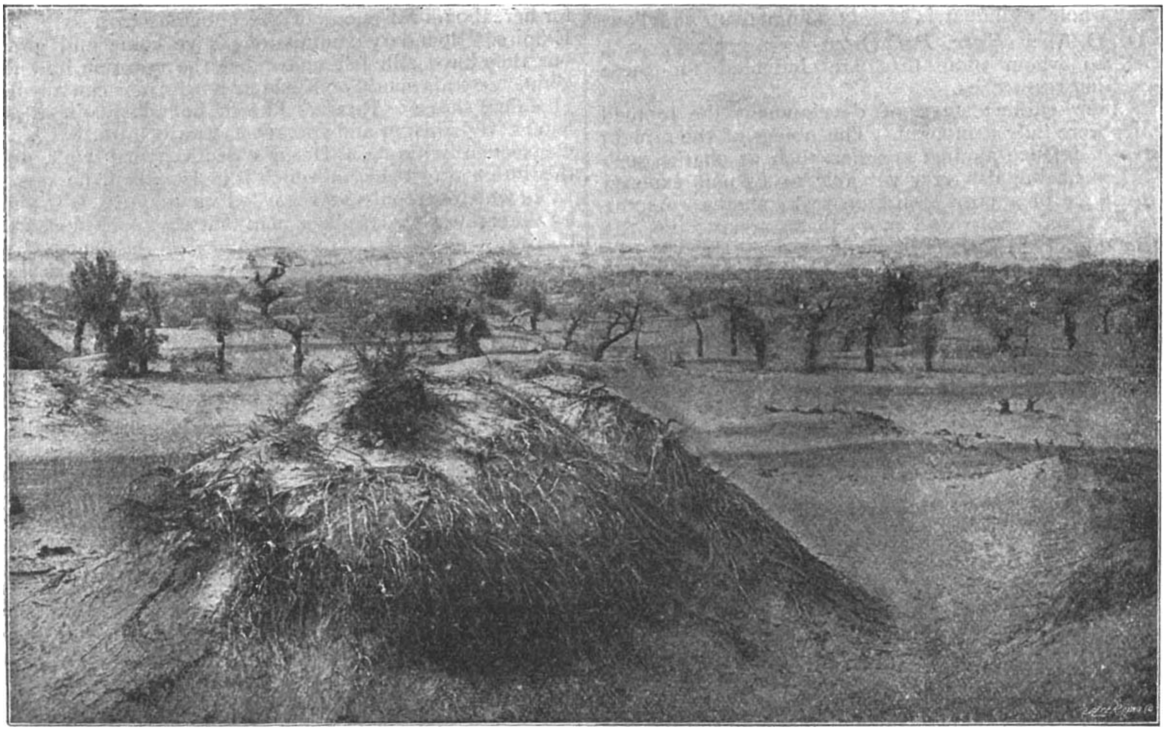

FIG. 1.—Scene in the Takla Makan.

NOTES.

THE president of the Board of Education has appointed Prof. Hugh L. Callendar, F.R.S., to the professorship of physics in the Royal College of Science, South Kensington, in succession to Prof. Rücker, who, as already announced, has become principal of the University of London.

THE Duke of Devonshire has suggested a reason for the tentative way in which the problem of our educational organisation has been attacked. In opening the new Central Technical School at Liverpool on Saturday he placed the responsibility for the present state of affairs upon educational authorities, religious and political bodies, employers, workmen, parents and other representatives of the community, because "the only source of strength by which the Government could hope to surmount the difficulties would be the conviction of public opinion of the importance of education itself and the necessity for its extension and organisation." He anticipated the criticism that must be passed upon such a statement by saying "He would probably be told he was whistling for a wind; that he was asking for an expression of public opinion which would guide the Government in forming either large or small proposals on the subject of education. He did not altogether resent the imputation." It is clear from this that our Ministers acknowledge that they are not leaders so far as education is concerned. The Lord President's reference to whistling for a wind is unhappy when other nations are going full speed ahead under steam. Dr. Macnamara puts the case very forcibly in a letter to Tuesday's *Times*, where he remarks that what the British people ought to give the Government is, not a breeze, but a tornado. Something should be done to bring about this storm and so waken our rulers into activity. The education question is too important to be permitted to drift along as it has done; and even now it will be a hard task to make up the leeway. Our educational deficiencies are obvious to everyone who has given consideration to the subject. Report after report has been published showing that we only occupy a fifth-rate position when considered from the point of view of provision made to equip people for the industrial struggles of the future. The Government knows this, but it can scarcely appreciate the fact that national progress depends upon intellectual equipment, or it would hasten to do something to organise and extend our educational system.

THE following is the text of the address of congratulation presented to Prof. Virchow, on the occasion of his eightieth birthday, by those members of the Anthropological Section of the British Association who were present at the recent Glasgow meeting:—"British Association for the Advancement of Science: the Section of Anthropology to Prof. Rudolph Virchow:—It seldom falls to the lot of one man to establish a position, as you have done, as a leader in two great branches of science. Throughout the world you are generally recognised as the founder of modern pathology, whilst in the domain of anthropology your services have been hardly less remarkable. Whenever anthropologists meet together, your name is mentioned with the respect and reverence that are due to a great master. At the present moment the British Association for the Advancement of Science is holding its annual meeting in Glasgow, and the members of the Anthropological Section, aware that you celebrate your eightieth birthday on October 14, desire to convey to you their affectionate greetings, and to express the hope that you may be spared to add yet further to the indebtedness which they owe to you as a worker in the same field. Signed on behalf of the committee of the Anthropological Section, D. J. Cunningham, president, J. L. Myers, recorder. Glasgow, September 11, 1901." The address, richly engrossed, was presented personally to Prof. Virchow by Lord Lister in the course of the celebration ceremony at Berlin.

To remove any misapprehension as to his opinion upon the result of M. Santos Dumont's recent aërial performance, M. Deutsch has written him a letter stating that he considers the trip to have been completely successful and that the prize has been won. M. Deutsch sent M. Santos Dumont at the same time the sum of 1000*l.*, which the latter has handed to the Prefect of Police for distribution among the poor of Paris. The committee's decision concerning the prize of 4000*l.* has not yet been announced.

Sir H. Trueman Wood will deliver the next Christmas Juvenile Lectures at the Society of Arts, the subject being "Photography and its Applications." The idea will be to show in what a large number of cases photography has been applied to scientific observation, and how varied are the applications. The subject is an interesting one and ought to prove very attractive. The dates of the lectures are January 1 and 8.

Sir Hiram S. Maxim confirms the observation mentioned in our issue of October 17 (p. 607) of the attraction which certain sounds have for mosquitoes. Writing to the *Times*, he states that one of the electric lamps which he put up at Saratoga Springs, New York, in 1878, emitted a musical note; or rather the note proceeded from the box containing the dynamo machine under the lamp. One evening whilst examining the lamp he found that everything in the immediate vicinity was covered with small insects. They did not appear to be attempting to get into the globe, but into the box that was giving out the musical note. A close examination of these insects showed that they were all male mosquitoes. Although there were certainly 200 times as many female mosquitoes on the ground as males, not a single female mosquito was found to have been attracted in the least by the sound. Sir Hiram Maxim remarks that "when the lamps were started in the beginning of the evening every male mosquito would at once turn in the direction of the lamp, and, as it were, face the music, and then fly off in the direction from which the sound proceeded. It then occurred to me that the two little feathers on the head of the male mosquito acted as ears, that they vibrated in unison with the music of the lamp, and as the pitch of the note was almost identical with the buzzing of the female mosquito the male took the music to be the buzzing of the female."

Prof. E. Ray Lankester has been elected a corresponding member of the Royal Society of Sciences of Göttingen.

The exhibits of the German Chemical Industry Section at the Paris Exposition, valued at 30,000*l.*, have, it is said, been presented to the Technological Institute of the Berlin University.

Mr. G. W. de Tunzelmann has been appointed editor of *Science Abstracts* in succession to Mr. W. R. Cooper, and will take over the duties of the office on January 1 next.

A Sicilian agricultural exhibition is, according to a Consular Report, to be held at Palermo from March to May next. There will be a class for international agricultural machinery.

The new specimens added to the Museum of Anatomy and Pathology at University College, Gower Street, will be on view until November 2.

The Bradshaw lecture will be given before the Royal College of Physicians on November 5 at 5 p.m., by Dr. J. S. Bury. The subject will be "Prognosis in Relation to Disease of the Nervous System."

On Tuesday next, November 5, the president of the Institution of Civil Engineers will deliver his inaugural address, distribute the council's awards, and hold a reception. The meeting will take place at 8 p.m.

The Lettsomian lectures of the Medical Society of London will be delivered on February 17 and March 3 and 17 next, at 9 p.m., by Mr. A. Pearce Gould, who will take as his subject "Certain Diseases of the Blood Vessels." The annual oration will be delivered on May 26 by Dr. Stephen Mackenzie.

According to the *British Medical Journal*, Surgeon-Gen. Wyman, of the U.S. Marine Hospital Service, proposes to establish an institute for the study of yellow fever. The work will be divided into four departments or sections, viz., history and statistics, etiology, transmission, quarantine and treatment. An executive board is to have general charge of the investigations and the publication of reports.

A detailed account of the relationship between mosquitoes and the spread of yellow fever is given in the Paris *Bulletin Medical* by Dr. H. de Gouvêa, who studied the subject for many years in Brazil. Dr. Gouvêa shows that the conditions of propagation of the disease have always been such as to fulfil the requirements of the mosquito hypothesis, and to afford abundant indirect evidence in favour of the belief which has now been reached by more direct methods. In conclusion, he formulates a series of propositions—namely, that yellow fever is never conveyed by either direct or indirect contagion; that the actual cause of it, at present unknown, will in all probability be discovered in the human blood; that it is diffused only by the agency of the mosquito, *Culex toeniatus* or *fasciatus*; and that immunity from it may be secured by the destruction of these insects, or by avoidance of their haunts during the periods of their activity.

A difficulty has arisen concerning the site on which the new Pasteur statue in Paris shall be erected. The use of a space in the Square Médicis in the Quartier Latin has been granted, but this spot is being tunnelled for a railway, and it is feared, in consequence, that the statue may be too weighty for it. Other places, such as the Place du Panthéon, the Place de la Sorbonne, and the entrance of the Avenue de l'Observatoire, are under consideration.

A committee of the Association of Chambers of Commerce meeting recently unanimously adopted the following resolutions:—"(1) That, after considering various suggestions, this committee is unanimously of opinion that the Chambers should unite in urging upon the Government the compulsory adoption of the metrical system of weights and measures, leaving matters of detail to be considered later. (2) That the committee is unanimously of opinion that a British decimal system of coinage must be on the basis of retaining the sovereign, with the florin as a unit, divided into a hundred cents or farthings. (3) The committee recommends that there should be nickel coins of five and ten cents, and bronze coins of one, two and four cents or farthings."

Meetings of the committee appointed by the Board of Trade to inquire and report as to the best means by which the State or local authorities can assist scientific research as applied to problems affecting the fisheries of Great Britain and Ireland took place on Tuesday, Wednesday and Thursday of last week for the purpose of taking evidence. Sir Herbert Maxwell, M.P., presided. Dr. T. Wemyss Fulton, scientific superintendent to the Scottish Fishery Board, and Mr. E. W. L. Holt, scientific adviser to the fisheries branch of the Department of Agriculture, &c., Ireland, were examined, and Mr. G. C. Bompas and Prof. G. B. Howes gave evidence with regard to the Buckland fish collection at South Kensington. Prof. E. Ray Lankester, the president, and Mr. E. J. Allen, the director, of the Marine Biological Association, and Mr. R. A. Dawson, superintendent under the Lancashire and Western Sea Fisheries Committee, also attended. Prof. Herdman, who is a member of the committee, submitted a scheme for fishery investigations in the Irish Sea, and the committee adjourned till December 3.

Mr. J. Stirling, Government Geologist, &c., Victoria, is to lecture at the Imperial Institute on November 18, on "Brown Coal Beds of Victoria, their Characters, Extent and Commercial value"; on December 9 Mr. D. Hutcheon, chief veterinary surgeon for Cape Colony, is to speak on "Agricultural Prospects of Cape Colony," and on December 16 Mr. H. N. Ridley, director of the Botanic Gardens, Singapore, will deliver an address on "The Economic Resources of the Straits Settlements and the Malay Peninsula." All the meetings will take place at 8.30 p.m.

The provisional programme of the new session of the Royal Geographical Society has just been issued and contains the following arrangements:—November 11, the opening address by the president, and "The Uganda Protectorate, Ruwenzori and the Semliki Forest," by Sir Harry Johnston, K.C.B.; November 25, "Four Years' Travel and Survey in Persia," by Major Molesworth Sykes; December 9, "The Glaciers of Kanchinjunga," by Mr. Douglas W. Freshfield. Among the other papers which it is expected will be delivered during the session may be mentioned:—"A Journey from Omdurman to Mombasa by Lake Rudolf," by Major H. H. Austin, R.E.; "The Maldives," by Mr. J. Stanley Gardiner; "Journeys in Western China," by Dr. R. L. Jack; "The Influence of Geographical Conditions on History and Religion, with special reference to Asia Minor," by Prof. W. M. Ramsay; "An Expedition across Abyssinia, through Kaffa and the Region to the West and North," by Mr. Oscar Neumann; "Southwards on the Antarctic Ship *Discovery*," by Mr. George Murray, F.R.S., and Dr. H. R. Mill; "The Bedford Level and Experimental Demonstration of the Rotundity of the Earth," by Mr. H. Yule Oldham; "The Snows of Canada," by Dr. Vaughan Cornish; "A Journey from Quetta to Meshed by the new Nushki Trade Route," by the Earl of Ronaldshay; "The Ice Conditions of the Antarctic," by M. Henryk Arçtowski; "Methods and Appliances in the Teaching of Geography. Special Lecture for Teachers," by Mr. A. W. Andrews.

An exhibition of scientific apparatus constructed by pupils and teachers of the London School Board for the purpose of teaching and illustrating some of the branches of experimental science is opened to-day at the Examination Hall, Victoria Embankment, and will remain open until Monday next. No charge is made for entrance, and the Board invite the inspection of the exhibits. Among the latter are to be found induction coils, telegraph instruments, motors, voltameters, galvanometers, Boyle's tubes, balances, and lantern and microscopic slides. There will also be shown dissections in a preservative spirit, such as a skate's ear, sheep's kidney, rabbit's lung, &c.

Prof. Bashford Dean, says *Science*, has returned to Columbia University, bringing with him from the east an almost complete series of developmental stages of the Port Jackson shark, *Heterodontus japonicus*, a number of stages in the development of Chlamydoselachus, two new Myxinoids, a new Chimæra, together with a general zoological collection. During a visit to the Hokkaido (Yezo), he brought together several hundred specimens of Aino antiquities, which are now deposited in the American Museum of Natural History in New York. He also secured a collection of interesting glass sponges from the region of Misaki, which are also destined for the American Museum. Among other specimens are included a number illustrating artificial selection, a series of the highly specialised varieties of Japanese gold fishes, together with a number of the long-tailed fowls of Tosa, whose tail feathers sometimes reach the extraordinary length of fifteen feet. For the Columbia collection he obtained during a visit in southern Negros, P.I., a series of dissections of Nautilus, prepared from fresh material.

The steam yacht *Antarctic* called at Falmouth on Saturday last and left on the same day with the members of the Swedish Antarctic Expedition on board. The leader of the expedition is Dr. Otto Nordenskjöld, whose work in Tierra del Fuego and Spitsbergen is well known to geographers. Other members are Captain Larsen; Dr. A. Ohlin and Mr. K. Anderson, zoologists; Mr. C. Skottsberg, botanist; Dr. G. Bodman, magnetician and hydrographer; and Dr. E. Ekelöf, medical officer and bacteriologist. From an article in the *Times* we learn that the vessel will proceed direct to Buenos Ayres, and thence by Staten Island (where the instruments will be compared with those of the Argentine scientific station) and the Falkland Islands, to the South Shetlands and the east coast of Graham Land (King Oscar Land), where, if a suitable spot for the winter quarters can be found, a station will be established for six or seven persons, under the command of Dr. Nordenskjöld himself, and observations carried out in harmony with those of the British and German expeditions. If, however, suitable quarters cannot be obtained, the winter station will be established somewhat further north. In any case, the ship, with two or three of the scientific observers, will return to South America and the Falkland Islands for the winter, after the best possible use has been made of the Antarctic summer.

A short account of Antarctic exploration, and of the problems which still await solution by systematic observations in South Polar regions, is contributed to the October *Quarterly Review*. The German and British ships, the *Gauss* and the *Discovery*, have each been described as the best which have ever left on voyages of discovery, but the *Quarterly* reviewer demurs to this estimate, and remarks that Admiral Makaroff regards both the vessels as at least half a century behind the times. A steel ship like the great icebreaker *Ermack* is suggested as more serviceable than wooden vessels. "All who have inspected the *Ermack*, or have made a voyage in her, will probably admit that she is the most powerful and efficient vessel afloat for exploration, and the best equipped and most convenient for scientific observation and research. Should the Tzar send this splendid ship to the Antarctic seas next season her operations would most certainly result in large additions to knowledge in directions which cannot be attempted by the *Discovery* and the *Gauss*."

From the point of view of modern shipbuilding, the opinion expressed in the foregoing note upon the *Discovery* as a ship for scientific exploration is probably correct, but for obvious reasons it was impossible to design and build a vessel regardless of expense. From despatches just received by Sir Clements Markham from the Cape, it appears that the *Discovery* must be accounted a poor sailer, though she has proved to be a good sea boat. Her coal consumption is, however, disappointing, the economy of the engines being less than was expected. The ship leaked from causes which can no doubt be obviated, but the defect has necessitated clearing the holds to construct floors with an ample bilge space beneath, so that the provision cases be preserved from injury. These facts accentuate the importance of providing a relief ship to communicate with the *Discovery* at the end of the first winter, to take out coals and stores, and to render assistance in other ways. A strong appeal is to be made to supplement the funds already subscribed for this purpose. The sum of 6680*l*. has been obtained, but a further amount of 10,000*l*. is required, and this should be secured without delay.

A striking testimony as to the value of Dr. Calmette's antivenene is to be found in an extract from a report by the medical officer on an Indian railway line which the current issue of the *Lancet* contains. "On the night of the 23rd [of August] I was called," says the medical man in question, "to see a coolie woman who had been bitten by a large snake supposed to be a cobra. She was said to have been bitten at about 7 p.m. and I did not see her till two hours later. She was then practically moribund, the throat paralysed, and consciousness completely lost. All the symptoms of poisoning by colubrine venom were well marked. I injected a full dose of Dr. Calmette's antivenene, but was not sanguine as to the result, the patient's condition being apparently hopeless. The effect of the remedy was marvellous; consciousness returned in fifteen minutes, and I was so encouraged by the result of the first injection that I decided to give another dose of the serum. It acted like magic and within three hours of the first injection the patient was well."

We have received from Signor Palazzo, director of the Italian Meteorological Service, an account of the organisation of special stations for the study of hail and thunder storms and for carrying on further experiments as to the possibility of dispersing thunder clouds by gun firing. Although scientific men are very sceptical about the efficacy of the practice, the majority of Italian agriculturists are very enthusiastic in the matter, and the Government has consequently voted 10,000 lire for the establishment of two shooting stations in the most suitable localities and has provided them with the most sensitive instruments for predicting the advance of the storms, and with means for tracing their course and the amount of damage caused. Up to the present time the results obtained are contradictory; in some cases the firing appears to have had a favourable effect, while in others the firing apparatus itself has been choked by the falling hail. The inquiry will, at all events, be useful in throwing light upon the propagation and characteristics of thunderstorms.

The twenty-third annual report of the Deutsche Seewarte, for the year 1900, shows that the subject of maritime meteorology has been prosecuted with increased activity; 75 complete log-books were received from the Navy and 472 from the mercantile marine, in addition to which 299 abstract logs containing less complete observations were received. The consulates in various parts of the world, including several in this country, act as agencies for meteorological purposes. The observations are published in the form of tabular results referring to ten-degree squares, or districts of the ocean, and are utilised in the construction of the daily synoptic weather charts of the North Atlantic. The department dealing with weather telegraphy is also very active, and has made great endeavours to improve the service by the introduction of direct interchange of reports made at 7h. instead of 8h. a.m., a practice which is being followed by most countries, whereby weather information is disseminated earlier than before, with a consequent increase of utility. In this matter Dr. Neumayer has been very ably supported by Dr. van Bebber, the superintendent of the section engaged in weather prediction.

Many attempts have been made to generalise the methods of "casting out" the nines or elevens so as to obtain in a simple form the criterion of divisibility of high numbers by factors other than 9 or 11. For example, we have the well-known test for divisibility by 7 or 13 which consists in pointing the given number off in thousands and subtracting the sum of the numbers in one set of alternate groups from the sum of those in the other set. Such generalisations date as far back as a paper in the works of Blaise Pascal published in 1779. Prof. Gino Loria, writing in the *Atti dei Lincei*, x. 7, now gives an investigation of the criteria of divisibility by any integer in a comparatively simple form.

A series of experiments on the period of a rod vibrating in a liquid is described by Mary J. Northway and A. Stanley Mackenzie in the *Physical Review* for September. The lowering of pitch, which is, of course, due mainly to the inertia of the fluid particles, is found in these experiments to conform to the following general approximate results:—The interval of lowering for a rod of given cross section is independent of the length. It is also approximately the same for brass and steel and is probably independent of the material within the range of substances ordinarily used. The interval of lowering for a rod of given width is approximately inversely proportional to the thickness, while for a rod of given thickness it is approximately directly proportional to the width. From the experiments, which were made both in water and cotton-seed oil, the authors calculate for the rods of different section the coefficient by which the mass of the displaced liquid must be multiplied in order, when added to the mass of the solid, to represent the effect of fluid inertia, *i.e.* the well-known coefficient which is proved in hydrodynamics to be unity for a cylinder and one half for a sphere moving in perfect fluid. The rods used in these experiments appear to have had a rectangular cross section. It would be interesting to inquire whether they had sharp edges, and under what conditions such edges tend to increase the damping of the oscillations.

Those engaged in or about to commence the production of coloured pictures by means of a camera will find much to interest them in the catalogue of apparatus, material and appliances which has just been received from Messrs. Sanger Shepherd and Co. In the process under consideration, many of the difficulties that were conspicuous in the Ives process have been eliminated, so that the procedure is in the reach of every photographer and the equipment required reduced to a minimum. By using the very carefully adjusted colour filters and printing-colours of exactly the correct absorption, which are here placed within the reach of anyone, and by providing oneself with the repeating back for the three separate negatives, a perfectly efficient outfit is secured. To make the coloured pictures, full instructions are added in a special pamphlet. the ordinary lantern may be used for throwing the pictures on the screen, and brilliant discs up to 12 feet diameter can be shown with the ordinary oxyhydrogen limelight; and with the electric arc discs up to 20 or 30 feet. A further pamphlet of Messrs. Cadett and Neall, Ltd., contains a concise account of the object of orthochromatic photography and the principles underlying its use.

We have received reprints of an important paper by Mr. Thomas H. Holland on the Sivamalai series of elæolite-syenites and corundum-syenites in the Coimbatore district, Madras Presidency (*Mem.* Geol. Surv. India, vol. xxx. part iii., 1901). The elæolite-syenites are accompanied by augite-syenites containing olivine and other minerals. These rocks are also associated with others made up principally of felspar (albite and orthoclase), containing large quantities of well-crystallised, generally tabular, corundum, which is extracted by the villagers near the junction of the felspar-rock with the elæolite-syenite. It is remarked that the association of rocks is remarkably similar to that described in eastern Ontario, and also in the Urals.

The methods of improving ocean bars are discussed by Mr. Lewis M. Haupt in the *Proceedings* of the American Philosophical Society for July in connection with the proposed improvements at Brunswick Outer Bar, Georgia. There are at least five methods available for creating navigable channels, namely, by the use of dynamite, by a single jetty, by a single curved breakwater, by twin jetties, and by dredging. Of the several methods proposed for bar removal by the use of single or double jetties or by the reaction breakwater, the latter, so far as it has been tested, fulfils better than any other the conflicting requirements of harbour entrances, costs less than half as much, and is far cheaper to maintain.

M. Charles Rabot publishes, in the August and September numbers of *La Geographie*, a full summary of the chief contributions to the literature of limnology which have appeared during the past year. The work done in each country is dealt with under a separate heading, and the paper includes a review of Prof. Forel's "Handbuch der Seenkunde."

The *National Geographic Magazine* for September contains an article on "German Geographers and German Geography," by Dr. Martha Krug Genthe. A summary is given of the work associated with the names of Behaim, Kant, Humboldt, Ritter, Berghaus, Richthofen and Ratzel, and some account of the present position of geography in German education. The magazine also contains a note by Mr. R. Muldrow on Mount McKinley, in Alaska, the highest mountain in North America. A series of theodolite measurements from points on a stadia line run up the Shushitna River gives the position of the mountain in lat. 63° 5′ N., long. 151° 0′ W., and its height at 20,464 feet.

The September number of *Naturen*, the excellent popular journal issued by the Bergen Museum, contains an article on the dipper, and a second on the European bison.

In the *Memorias y Revista* "Antonio Alzate," Señor L. Herrera publishes the second instalment of his remarkable scheme for an abbreviated biological and mineralogical nomenclature.

In the October issue of the *Zoologist* Mr. L. J. Bevir discusses Dante as a naturalist, while the Rev. H. A. Macpherson contributes some interesting particulars with regard to the work of early ornithologists.

The Zambesi Mission Record usually contains one or more articles dealing with science in a popular manner. The issue for the current month has a very readable illustrated communication entitled "A Chat about Snakes," from the pen of the Rev. J. O'Neil.

According to the October issue of *The Naturalist*, the members of the Yorkshire Naturalists' Club enjoyed a most successful outing at Wykeham, near Scarborough, on June 22. Perhaps the feature of the day was the number of fritillary butterflies seen on the wing.

Messrs. W. and G. S. West have completed their alga-flora of Yorkshire in the *Transactions* of the Yorkshire Naturalists' Union. The enumeration makes up 1044 species.

Among the lectures to be delivered at the Royal Victoria Hall, Waterloo Road, during the month of November we notice the following:—November 5, "Lightning and other forms of the Electric Discharge," by Prof. A. W. Porter; November 26, "Student Life in Germany," by Dr. A. W. Crossley.

The syllabus of the Hampstead Scientific Society for 1901–2 has reached us, and gives promise of a full and interesting session. The opening meeting will be held on November 1, when the president, Sir Richard Temple, will deliver an address.

Those of our readers who are on the look-out for cheap scientific books should see the new catalogue of remainders, &c., which has just been issued by Mr. H. J. Glaisher, of Wigmore Street, W. In it are to be found the titles of very many such works at greatly reduced prices.

The following American botanical publications have been received:—"The Willows of Alaska," by Frederick V. Colville, from the *Proceedings* of the Washington Academy of Sciences; and the "Violet-rusts of North America," by J. C. Arthur and E. W. D. Holday, reprinted from the *Minnesota Botanical Studies*. They consist of three species, *Aecidium pedatum*, *Puccinia Violae*, and *P. effusa*.

The *Journal* of the Royal Microscopical Society for October contains a further instalment of Mr. F. W. Millett's report on the recent foraminifera of the Malay Archipelago collected by Mr. A. Durrand. The summary of current researches is noteworthy as indicating the attention now being paid to the construction of microtomes, no less than seven new instruments or improvements on old instruments being described. Abstracts are given of a number of recently published important papers on microscopic metallography, several of them illustrated by half-tone plates.

Two papers by Ciamician and Silber have appeared in recent numbers of the *Berichte*, which describe a series of interesting experiments on the action of light in promoting mutual oxidation and reduction between organic compounds. This change is specially interesting in connection with the chemical effects brought about by light in plant life. The oxidising agent is represented by a ketone, diketone or aldehyde, those of the aromatic series being the most active. They undergo reduction into alcohol or pinacone. The reducing agent is an alcohol or ordinary ether, the alcohol being converted into aldehyde or ketone. The product of oxidation of ether has not been determined. Thus quinone dissolved in ethyl alcohol, sealed up and exposed to sunlight, gives quinol and aldehyde; quinone and isopropyl alcohol give quinol and acetone; glycerol is oxidised to glycerose (dioxyacetone), erythritol to erythrose, &c. On the other hand, benzophenone in presence of alcohol is reduced to benzopinacone, benzaldehyde to hydrobenzoin, &c. Curiously enough, even such stable substances as the paraffins and benzene undergo oxidation with quinone, black products being obtained, which have not yet been investigated. Still more remarkable is the action of light on ortho-nitrobenzaldehyde either dry or dissolved in various solvents. It is then converted into ortho-nitrosobenzoic acid $C_6H_4(NO_2)COH = C_6H_4(NO).COOH$. In presence of methyl or ethyl alcohol, the corresponding ester is formed. Under like conditions, meta-nitrobenzaldehyde gives resinous products, and the para-compound remains for the greater part unchanged.

The additions to the Zoological Society's Gardens during the past week include a Ruff (*Machetes pugnax*), European, presented by Mr. W. H. Dobie; six Common Pheasants (*Phasianus colchicus*, white var.), British, presented by Sir J. Haggerston, Bart.; a Bronze-winged Parrot (*Pionus chalcopterus*) from Colombia, a Naked-footed Owlet (*Athene noctua*), European, deposited; four North African Jackals (*Canis anthus*), two Fennec Foxes (*Canis cerdo*) from North Africa, received in exchange.